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DEMONSTRATION of an Electrostatic Voltmeter, and of Apparatus for Weighing and Density Determinations, by the Research Staff of the General Electric Co., London. (Shown by Mr. E. M. Eden and Dr. F. S. Goucher.)

(*a*) *A Rapid-Weighing Balance* for quantities up to 40 mg. (scale-divisions 0·1 mg.). This instrument is more particularly used for weighing filaments, which are hung on the lever of a torsion balance, thereby tightening a fine vertical wire. To the middle point of the latter is attached one end of a horizontal wire, the other end of which is fixed. The middle portion of the horizontal wire is optically projected on to a scale.

(*b*) *Electrostatic Voltmeter.*—This comprises a fixed and a movable disk, the distance apart being adjustable. The movable disk when attracted tightens a catenary of fine wire, the middle portion of which is optically projected on to a scale.

(*c*) *Apparatus for the Measurement of Density of Fine Wires.*—The wire to be tested is arranged as a cantilever and the sag of its end is measured in air and in a liquid of known density.

DISCUSSION ON THE ELECTROSTATIC VOLTMETER.

Prof. C. H. Lees commented on the high damping of the instrument, which contrasts favourably with that of many electrostatic voltmeters.

Mr. C. C. Paterson remarked that the design in some respects resembles that of Abraham, which also employs sliding electrodes. The chief novelty of the present instrument lies in the direct measurement of the sag of the catenary.

Mr. K. Edgcumbe said he should be interested to know how the instrument was calibrated.

Mr. B. S. Gossling, in reply to the previous question, stated that the electrometer was standardised by comparison with an electro-dynamometer. It might be of interest, he added, to give some further details. A theoretical calculation shows that for very small voltages the scale is somewhat close, but for greater voltages it is more open, and is nearly uniform, closing again as the wire becomes taut. The calculated scale agrees very well with that obtained by the calibration, and the scales corresponding to different adjustments of the disks agree equally well with one another. The catenary is so designed that the movement of the small attracted disk is very small compared with its distance from the fixed disk.